

DEVELOPMENT OF THE KAMOKUMA ENTRY, KILAUEA
VOLCANO, HAWAII, SEPTEMBER 2-17, 1995

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The Pu'u 'O'o eruption of Kilauea Volcano began in 1983 and continues as of this writing. One characteristic of this eruption is the development of lava tube systems that transport lava from the vent to the sea. Even though Kilauea is one of the best-studied volcanoes in the world, it is still difficult to obtain a synoptic overview of compound flow fields or lava tube systems. Remote sensing, from airborne or spaceborne platforms, is a promising way to monitor such volcanic activity.

Thermal Infrared Multispectral Scanner (TIMS) and visible-near infrared multispectral scanner (NS001) data were acquired between September 2-17, 1995. During this period a lava flow broke out of the tube system and advanced to the ocean, forming the Kamokuna entry sites. We acquired eleven relatively cloud-free scenes which document the advance of the flow and the development of the entry sites. We will present temperature maps of the new surface flows, warm older flows, tube systems, and spectral maps of individual flow units and regions altered by fumarolic activity.

The airborne data acquired in September 1995 are a predecessor to the data we expect from the Advanced Spaceborne Thermal Emission and Reflectance Radiometer (ASTER), which is scheduled for launch in 1998. ASTER will provide image data in the visible-near infrared (at 15 m spatial resolution), shortwave infrared (30 m resolution), and thermal infrared (90 m resolution), with a repeat cycle between 16 days and one month. Our airborne survey demonstrates the potential use of ASTER data in monitoring an active eruption.

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PROGRESSION OF PU'U 'O'O FLOW FIELD FROM SEPTEMBER 2-17, 1995